

		NTSB ID: CEN10FA424		Aircraft Registration Number: N918EM	
		Occurrence Date: 07/22/2010		Most Critical Injury: Fatal	
		Occurrence Type: Accident		Investigated By: NTSB	
Location/Time					
Nearest City/Place Kingfisher	State OK	Zip Code 73750	Local Time 1925	Time Zone CDT	
Airport Proximity: Off Airport/Airstrip		Distance From Landing Facility:			
Aircraft Information Summary					
Aircraft Manufacturer EUROCOPTER		Model/Series AS 350 B2		Type of Aircraft Helicopter	
Revenue Sightseeing Flight: No			Air Medical Transport Flight: Medical Emergency		
Narrative					
Brief narrative statement of facts, conditions and circumstances pertinent to the accident/incident: *** Note: NTSB investigators either traveled in support of this investigation or conducted a significant amount of investigative work without any travel, and used data obtained from various sources to prepare this aircraft accident report. *** ***This report was modified on May 9, 2013. Please see the docket for this accident to view the original report.*** HISTORY OF FLIGHT On July 22, 2010, approximately 1925 central daylight time, a Eurocopter AS 350 B2, helicopter, N918EM, impacted terrain near Kingfisher, Oklahoma. The commercial pilot and one flight nurse were fatally injured and one paramedic flight nurse was seriously injured. The helicopter was substantially damaged. The helicopter was registered to and operated by EagleMed LLC under the provisions of 14 Code of Federal Regulations Part 91 as a positioning flight. Visual meteorological conditions prevailed for the flight, which operated on a visual flight rules (VFR) company flight plan. The helicopter departed the Integris Baptist Medical Center Heliport (OK19), Oklahoma City, Oklahoma, at 1913 to pick up a patient in Okeene, Oklahoma. In an interview with the surviving paramedic flight nurse, he recalled that during the flight to Okeene, the left side door had come unlatched and was slightly ajar (about one-half inch). The paramedic informed the pilot that he was getting out of his seat to close the door and secure the handle. The pilot acknowledged the paramedic. After securing the handle, the paramedic stated that he had sat back down and begun to gather his seatbelt when a conversation began about another pilot flying on a coyote hunt. The paramedic reported that the pilot made a statement similar to "like this... (with some laughter)" and made a nose down control input. He reported that the pilot pulled up on the collective and the helicopter struck a tree. During the ground impact, the paramedic, who was not secured in his seat, was thrown through the windscreen; the paramedic crawled away from the wreckage and dialed 911 on his cell phone. The company monitored the helicopter's position through a Sky Connect device, configured to report a position about every five minutes. The last position report, recorded at 1919, depicted the helicopter at 1,509 feet mean sea level (msl), flying northwest, at 131 knots. This last reported position was approximately 11 nautical miles southeast of the accident site. PERSONNEL INFORMATION The pilot, age 56, held a commercial pilot certificate for airplane single engine land, instrument airplane, rotorcraft-helicopter, and instrument helicopter. He held a second class medical certificate issued February 8, 2010. On the pilot's last application for a medical certificate the pilot reported having accumulated 12,241 hours, with 119 hours logged with the preceding six					
FACTUAL REPORT - AVIATION					

 National Transportation Safety Board FACTUAL REPORT AVIATION	NTSB ID: CEN10FA424	
	Occurrence Date: 07/22/2010	
	Occurrence Type: Accident	

Narrative (Continued)

months. Of note, the pilot reported that he was not currently using any medications.

A review of company pilot records, revealed the pilot flew 2.2 hours in July 2010, 14 hours in June, 10.1 hours in May, and 3.6 hours in April. On May 20, 2010, the pilot completed his Part 135.293 and Part 135.299 checkrides. For several months prior to the accident the pilot was scheduled to be the night shift duty pilot from 1900 to 0700. When on-call, the pilot would be assigned between three to eight days with three to eight days off between shifts. The accident flight was at the beginning of the pilot's fourth day of being the duty pilot. The pilot's previous flight was on July 21 about 0300.

AIRCRAFT INFORMATION

The single engine helicopter, N918EM, serial number 3107, was manufactured in 1998. It was powered by a 732-shaft horsepower Turbomeca Arriel 1D1 engine, serial number 9759. The helicopter was configured with an air medical system under the Supplemental Type Certificate (STC) SE09139RC. Review of the maintenance documents revealed that the last inspection was a 100-hour inspection logged on May 28, 2010. Prior to departing on the accident flight, the helicopter had accrued 3,355.6 airframe hours. In addition according to the aircraft's daily flight/discrepancy log, there was at least one previously reported discrepancy that the front left passenger door had come open in flight. According to this log, the door was inspected and adjusted, and the aircraft was returned to service on June 25, 2010.

METEOROLOGICAL INFORMATION

At 1953, the automated weather reporting station at Wiley Post Airport (PWA), Oklahoma City, Oklahoma, located about 20 nautical miles southeast of the accident site reported winds from 170 degrees at 20 knots, visibility 10 miles, a clear sky, temperature 90 degrees Fahrenheit (F), dew point 68 F, a barometric pressure of 29.90 inches of mercury, and a remark for a peak wind condition from 170 degrees at 28 knots recorded at 1856.

WRECKAGE AND IMPACT INFORMATION

The wreckage of the helicopter was located in a flat, grassy field with an approximate elevation of 1,085 feet msl. A post impact fire had consumed a majority of the fuselage. Downed tree limbs with signatures consistent with rotor strikes, were found in a tree line located about 690 feet east of the wreckage. Portions of the helicopter's windscreen, main rotor blade skin, main rotor blade foam core, and the right position light lens from the helicopter's horizontal stabilizer, were also found nearby. About 520 feet east of the wreckage, a portion of the helicopter's right skid was located. The first ground scars began 115 feet east of the main wreckage and were consistent with the helicopters skids digging to the terrain. Portions of the skids were located at the beginning of the ground scars. The main wreckage consisted of the helicopter cockpit, cabin, transmission, and engine; all of which sustained impact and thermal damage.

The main rotor blades are marked with a color code of either red, blue, and yellow for identification purposes. The red main rotor blade remained attached to the Starflex main rotor head. The blue blade separated from the rotor head with signatures consistent with overload and was located 145 feet southwest of the main wreckage. The yellow blade separated from the rotor head with signatures consistent with overload and was located 285 feet north of the main wreckage. All three blades displayed signs of damage near the mid-span of the blades. Portions of blade skin and foam core had separated from all three blades and were found near the tree strikes and wreckage site. The transmission shaft, forward of the flex coupling, exhibited torsional damage and splaying of the flex coupling discs consistent with power being applied from the engine at the time of impact. The engine to tail rotor output flex coupling exhibited splaying and flailing damage consistent with power being applied by the engine to the tail rotor system at the time of impact. Tail rotor drive continuity was confirmed from the long tail rotor drive shaft through the tail

National Transportation Safety Board

FACTUAL REPORT

AVIATION

NTSB ID: CEN10FA424

Occurrence Date: 07/22/2010

Occurrence Type: Accident

Narrative (Continued)

rotor gear box to the tail rotor. No pre-impact anomalies were detected with the airframe.

An examination of the helicopter's engine revealed nicks and gouges on the axial compressor blades consistent with foreign object damage (FOD). Rotational continuity was established throughout the engine. The freewheel shaft was found slightly deformed consistent with power being applied at the time of impact. In addition, the module 5 input pinion slippage marks were misaligned/tightened 1.5 mm, consistent with power being applied by the engine during a sudden stoppage on the main rotor blades. No pre-impact anomalies were detected with the engine.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was performed on the pilot by the Office of the Chief Medical Examiner, Oklahoma City, Oklahoma. The manner of death was ruled an accident.

Forensic toxicology was performed on specimens from the pilot by the FAA Bioaeronautical Sciences Research Laboratory, Oklahoma City, Oklahoma. The toxicology noted the following:

No carbon monoxide detected in the blood, with no detection below 10% saturation.

39.31 (ug/ml, ug/g) Acetaminophen detected in Urine
 Chlorpheniramine detected in Blood
 Chlorpheniramine detected in Urine
 0.198 (ug/ml, ug/g) Diazepam detected in Blood
 0.026 (ug/mL, ug/g) Dihydrocodeine detected in Blood
 1.026 (ug/mL, ug/g) Dihydrocodeine detected in Urine
 0.15 (ug/ml, ug/g) Hydrocodone detected in Blood
 4.112 (ug/ml, ug/g) Hydrocodone detected in Urine
 Hydromorphone NOT detected in Blood
 0.302 (ug/mL, ug/g) Hydromorphone detected in Urine
 0.322 (ug/ml, ug/g) Nordiazepam detected in Blood
 0.629 (ug/mL, ug/g) Nordiazepam detected in Urine
 0.011 (ug/mL, ug/g) Oxazepam detected in Blood
 2.169 (ug/mL, ug/g) Oxazepam detected in Urine
 Temazepam NOT detected in Blood
 1.569 (ug/mL, ug/g) Temazepam detected in Urine

A review of the pilot's medical history found that the pilot was being treated for several medical conditions and had been prescribed multiple medications since at least 2007. In April 23, 2007, the pilot reported to his personal physician that he had bronchitis, hypertension, and sleep apnea, and after his visit, he was prescribed the following medications: Nexium (for gastroesophageal reflux), Caduet (for hypertension), Flexeril (sedating muscle relaxant), Lortab (hydrocodone and acetaminophen; narcotic pain medication), Lunesta (for sleep disturbance), and Requip (for restless leg syndrome). The pilot continued to report to his personal physician that he experienced increased pain and was prescribed stronger pain medications, to include prescription narcotics and benzodiazepines. In addition, steroid joint injections were applied to his right knee and shoulder to treat persistent pain. The last documented visit, February 25, 2010, the pilot was prescribed the following: Caduet (for hypertension), omeprazole (for gastroesophageal reflux); Meloxicam (a non-steroidal anti-inflammatory); Lunesta (sleep aid); Norco (10/325 hydrocodone/acetaminophen combination two tablets three times a day); baclofen (a muscle relaxant, 10 mg three times a day) and Valium (diazepam, a benzodiazepine, 10 mg three times a day). In addition to his prescribed medications, chlorpheniramine, an over-the-counter sedating antihistamine medication was also detected in the toxicology. There was no evidence that the pilot's sleep apnea had been treated prior to the accident. In addition, the pilot did not report any of his conditions and prescription medications to the FAA, to the certificate holder, or to the operator.

 National Transportation Safety Board FACTUAL REPORT AVIATION	NTSB ID: CEN10FA424		
	Occurrence Date: 07/22/2010		
	Occurrence Type: Accident		
Narrative (Continued)			
ADDITIONAL INFORMATION Garmin GPSMap 496 A Global Positioning System (GPS) device recovered from the accident scene was downloaded by the NTSB Laboratories in Washington D.C. A review of the accident flight data, revealed the helicopter cruised at approximately 130 knots and about 200 to 300 feet above ground level. At 1924:23, the helicopter descended at 385 feet per minute, followed by a descent rate of 1,890 feet per minute at 1924:25. The location and altitude of the helicopter, as recorded by the GPS corresponded to the location rotor impact marks with the trees. Updated on May 9 2013 3:14PM			
FACTUAL REPORT - AVIATION		Page 1c	

 National Transportation Safety Board FACTUAL REPORT AVIATION		NTSB ID: CEN10FA424			
		Occurrence Date: 07/22/2010			
		Occurrence Type: Accident			
Landing Facility/Approach Information					
Airport Name	Airport ID:	Airport Elevation Ft. MSL	Runway Used N/A	Runway Length	Runway Width
Runway Surface Type:					
Runway Surface Condition:					
Approach/Arrival Flown: NONE					
VFR Approach/Landing: None					
Aircraft Information					
Aircraft Manufacturer EUROCOPTER		Model/Series AS 350 B2		Serial Number 3107	
Airworthiness Certificate(s): Normal					
Landing Gear Type: High Skid					
Amateur Built Acft? No	Number of Seats: 4	Certified Max Gross Wt. 4961 LBS		Number of Engines: 1	
Engine Type: Turbo Shaft	Engine Manufacturer: TURBOMECA		Model/Series: ARRIEL 1D1	Rated Power: 712 HP	
- Aircraft Inspection Information					
Type of Last Inspection 100 Hour	Date of Last Inspection 05/2010	Time Since Last Inspection 165 Hours		Airframe Total Time 3355 Hours	
- Emergency Locator Transmitter (ELT) Information					
ELT Installed?/Type Yes /		ELT Operated? No	ELT Aided in Locating Accident Site?		
Owner/Operator Information					
Registered Aircraft Owner EAGLEMED LLC		Street Address 6601 W PUEBLO DR			
		City WICHITA	State KS	Zip Code 67209-2926	
Operator of Aircraft EAGLEMED LLC		Street Address 6601 W PUEBLO DR			
		City WICHITA	State KS	Zip Code 67209-2926	
Operator Does Business As: EagleMed			Operator Designator Code: 7EMA		
- Type of U.S. Certificate(s) Held:					
Air Carrier Operating Certificate(s): On-demand Air Taxi					
Operating Certificate:			Operator Certificate:		
Regulation Flight Conducted Under: Part 91: General Aviation					
Type of Flight Operation Conducted: Positioning;Non-scheduled; Domestic; Passenger Only					
FACTUAL REPORT - AVIATION					

 National Transportation Safety Board FACTUAL REPORT AVIATION		NTSB ID: CEN10FA424			
		Occurrence Date: 07/22/2010			
		Occurrence Type: Accident			
First Pilot Information					
Name		City		State	Date of Birth
On File		On File		On File	On File
					Age
					56
Sex: M	Seat Occupied: Right	Occupational Pilot? Yes		Certificate Number: On File	
Certificate(s): Flight Instructor; Commercial					
Airplane Rating(s): Single-engine Land					
Rotorcraft/Glider/LTA: Helicopter					
Instrument Rating(s): Airplane; Helicopter					
Instructor Rating(s): Airplane Single-engine; Helicopter; Instrument Airplane					
Current Biennial Flight Review? 05/2010					
Medical Cert.: Class 2		Medical Cert. Status: With Waivers/Limitations		Date of Last Medical Exam: 02/2010	
- Flight Time Matrix	All A/C	This Make and Model	Airplane Single Engine	Airplane Multi-Engine	Night
Total Time	12240	6000			
Pilot In Command(PIC)					
Instructor					
Instruction Received					
Last 90 Days	28	28			
Last 30 Days	14	14			
Last 24 Hours	1	1			
Seatbelt Used? Yes		Shoulder Harness Used? Yes		Toxicology Performed? Yes	
				Second Pilot? No	
Flight Plan/Itinerary					
Type of Flight Plan Filed: Company VFR					
Departure Point	State			Airport Identifier	Departure Time
Oklahoma City	OK			OK19	1913
Destination	State			Airport Identifier	Time Zone
Okeene	OK				CDT
Type of Clearance: None					
Type of Airspace:					
Weather Information					
Source of Wx Information:					
Company					

 National Transportation Safety Board FACTUAL REPORT AVIATION			NTSB ID: CEN10FA424		
			Occurrence Date: 07/22/2010		
			Occurrence Type: Accident		

Weather Information					
WOF ID	Observation Time	Time Zone	WOF Elevation	WOF Distance From Accident Site	Direction From Accident Site
PWA	1953	CDT	1300 Ft. MSL	134 NM	20 Deg. Mag.
Sky/Lowest Cloud Condition: Clear				Ft. AGL	Condition of Light: Day
Lowest Ceiling: None			Ft. AGL	Visibility: 10 SM	Altimeter: 29.90 "Hg
Temperature: 32 °C		Dew Point: 20 °C		Weather Conditions at Accident Site: Visual Conditions	
Wind Direction: 170		Wind Speed: 20		Wind Gusts:	
Visibility (RVR): Ft.		Visibility (RVV) SM			
Precip and/or Obscuration: No Obscuration; No Precipitation					

Accident Information					
Aircraft Damage: Substantial		Aircraft Fire: Ground		Aircraft Explosion: None	

- Injury Summary Matrix	Fatal	Serious	Minor	None	TOTAL	
First Pilot	1				1	
Second Pilot						
Student Pilot						
Flight Instructor						
Check Pilot						
Flight Engineer						
Cabin Attendants						
Other Crew						
Passengers	1	1			2	
- TOTAL ABOARD -	2	1			3	
Other Ground						
- GRAND TOTAL -	2	1			3	

FACTUAL REPORT - AVIATION		Page 4
---------------------------	--	--------

 National Transportation Safety Board FACTUAL REPORT AVIATION	NTSB ID: CEN10FA424	
	Occurrence Date: 07/22/2010	
	Occurrence Type: Accident	
Administrative Information		
Investigator-In-Charge (IIC) Jason T. Aguilera		
Additional Persons Participating in This Accident/Incident Investigation: Robert Drake Federal Aviation Administration Washington, DC Dan Donnelly Federal Aviation Administration Oklahoma City, OK Scott Gerard EagleMed Wichita, KS Lindsay Cunningham American Eurocopter Grand Prairie, TX Archie Whitten Turbomeca Grand Prairie, TX Bryan Larimore Turbomeca Grand Prairie, TX Bernard Boudaille Bureau d'Enquetes et d'Analyses (BEA) Bourget, France, Scott Gerard EagleMed Wichita, KS Michael Hemann FAA Rotorcraft Directorate Arlington, TX		
FACTUAL REPORT - AVIATION Page 5		